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MAINTENANCE INTERVALS

Operation and Maintenance
Manual Excerpt

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SEBU7963-03
September 2009

Operation and Maintenance Manual

BU115 and BU118 Utility Brooms

JXS1-Up (BU115)
HJT1-Up (BU115)
LXB1-Up (BU118)
HJS1-Up (BU118)

i03675972

Maintenance Interval Schedule

SMCS Code: 6700

When Required

Cutting Edges - Inspect/Replace 44
Skirts - Inspect/Adjust/Replace 46

Daily

Broom - Inspect/Adjust/Replace 39
Broom Shaft Bearing - Lubricate 44
Cutting Edges - Inspect/Replace 44
Frame Mounting Bracket - Inspect 46
Skirts - Inspect/Adjust/Replace 46
Gutter Brush - Inspect/Replace 47

i03606180

Broom - Inspect/Adjust/ Replace

SMCS Code: 6702-025-BQ; 6702-040-BQ; 6702-510-BQ

Inspection

Inspect the broom for uneven wear and for excessive wear. If necessary, replace the bristles.

Note: Bristles that are less than two inches in length should be replaced.

Adjustment

Uneven wear of the bristles can occur when the broom is used in industrial applications. The brush leaves a pattern during operation which indicates the orientation of the brush. In most applications, the top housing of the broom should be parallel with the surface that is being cleaned. The pattern of the brush should be cylindrical and even. If the pattern is cone-shaped or if the pattern is uneven, consult your Caterpillar Dealer. In order to test the pattern of the broom, perform the following steps.

1. Raise the broom and move the host machine to a very dusty area.
2. Place the broom in the operating position. Operate the broom for a few seconds.

Note: Do not move the host machine. Otherwise, a true test pattern can not be established.

3. Raise the broom. Back up the machine away from the area. Identify the test pattern.

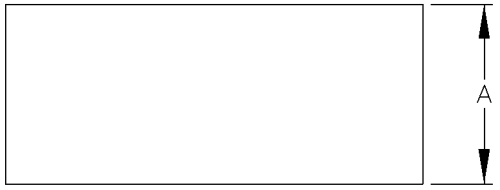

Illustration 44 g00585016

An acceptable test pattern

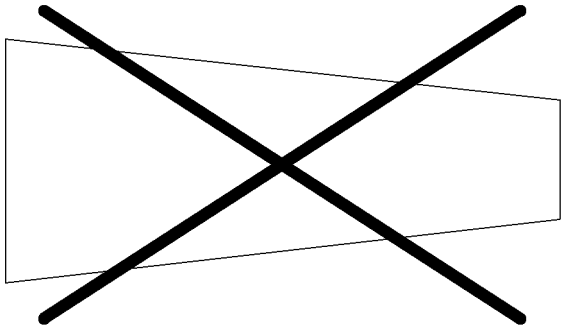

Illustration 45 g00585017

An unacceptable test pattern

4. Check the test pattern. Dimension (A) of the test pattern should be a uniform 51 to 152 mm (2 to 6 inches) across the length of the broom.

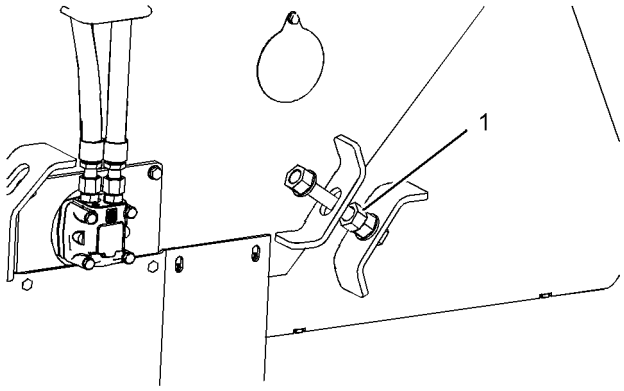

Illustration 46 g01154910

If it is necessary to adjust the height of the broom, raise or lower the position of the bolts (1) on both sides of the broom.

Note: Do not adjust the broom height with the tilt cylinders of the host machine. Uneven wear of the bristles and premature wear of the bristles can occur. The only method that will ensure even wear of the bristles is by adjusting the bolts on the utility broom.

Replacement

If it is necessary to replace the bristles, refer to Service Manual, RENR5838 for additional information on the procedure.

Remove the work tool from the host machine. Refer to , “Work Tool Installation and Removal” for information on removing the work tool.

Removal Procedure

⚠ WARNING

Check valves in the hydraulic system may allow pressure to exist in the hydraulic lines after the engine has been stopped. Pressure must be relieved prior to servicing the components of the hydraulic system. Failure to relieve pressure prior to servicing may result in personal injury.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, “Caterpillar Tools and Shop Products Guide” for tools and supplies suitable to collect and contain fluids on Caterpillar products.

Dispose of all fluids according to local regulations and mandates.

Note: Put identification marks on all lines and on all hoses for installation purposes. Plug all lines and all hoses. This helps to prevent fluid loss and this helps to keep contaminants from entering the system.

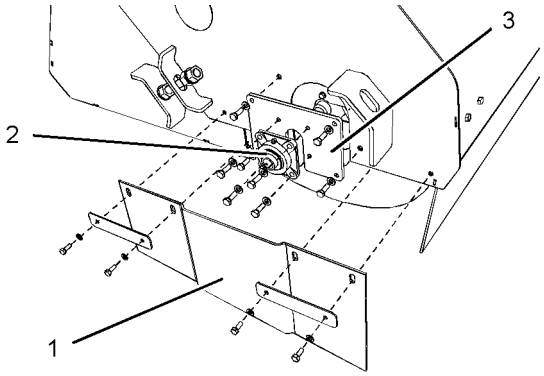

Illustration 47 g01936700

1. Remove the skirt (1). Remove the shaft bearing (2). Remove the plate (3). Refer to Service Manual, RENR5838, “Broom Shaft Bearing - Remove and Install” for information on removing the shaft bearing.

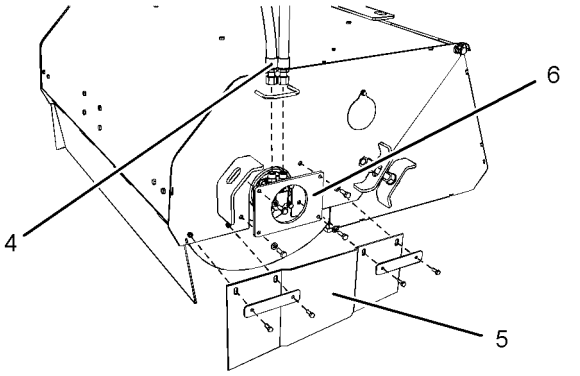

Illustration 48 g01936703

2. Disconnect the hose assemblies (4). Remove the skirt (5). Remove the plate (6).

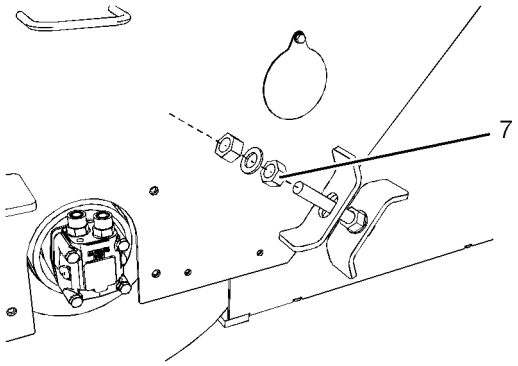

Illustration 49 g01936704

3. Remove nuts (7). Repeat for the other side.

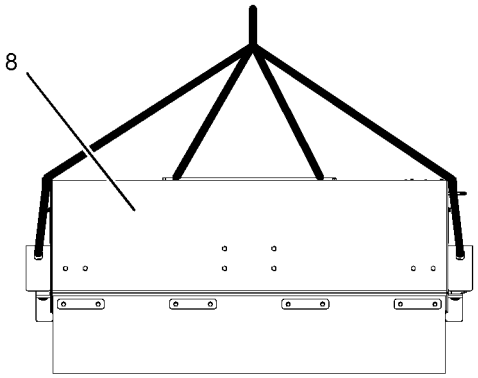

Illustration 50 g01937194

4. Attach a suitable lifting device in order to remove broom frame (8). Apply slight upward tension.

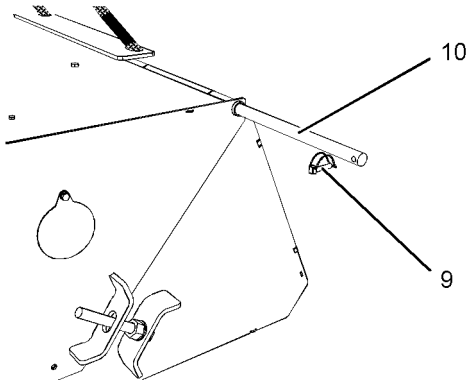

Illustration 51 g01936707

5. Remove pin assembly (9). Repeat for the other side. Drive pin (10) from the broom frame. Remove pin (10).

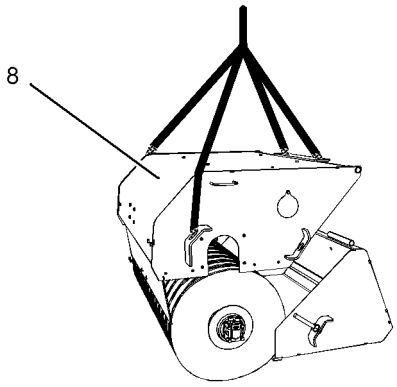

Illustration 52 g01936706

6. Remove broom frame (8). The weight of broom frame (8) is approximately 230 kg (500 lb).

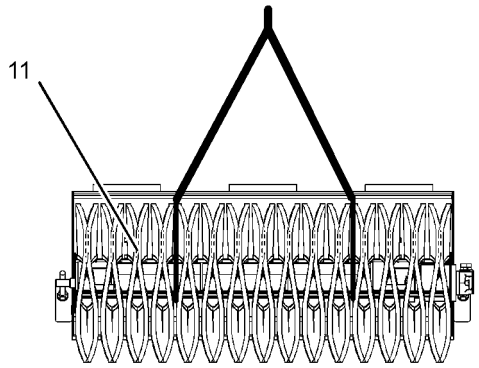

Illustration 53 g01936710

7. Attach a suitable lifting device in order to remove the brush assembly (11).

8. Carefully move the brush assembly away from the broom.

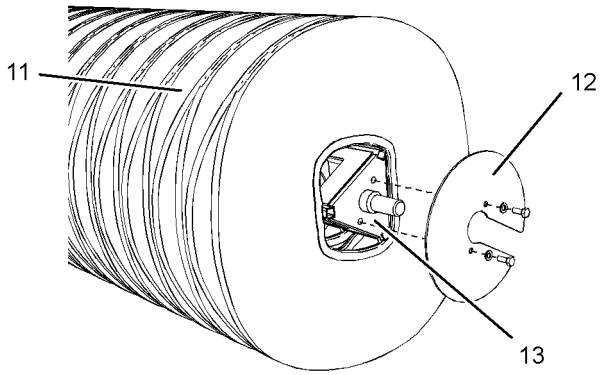

Illustration 54 g01937273

9. Remove the two bolts from end plate (12). Remove end plate (12) from core (13).

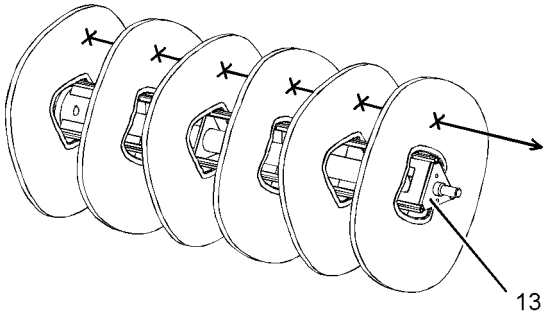

Illustration 55 g01937275

10. Remove the old segments of the brush from the core (13).

Replacement Procedure

Note: In order to replace the segments, the first segment and the last segment on the core must be polypropylene bristles. Alternate the new segments. Start with a polypropylene bristle. Next add a wire bristle. Next add a polypropylene bristle. Continue adding segments according to this method. Two identical types of bristles may be required in a row in order for each of the segments on the ends to be a polypropylene bristle.

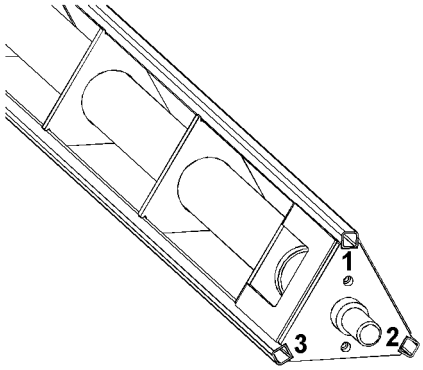

Illustration 56 g01937276

1. Number the tubes on the core as 1, 2, and 3.

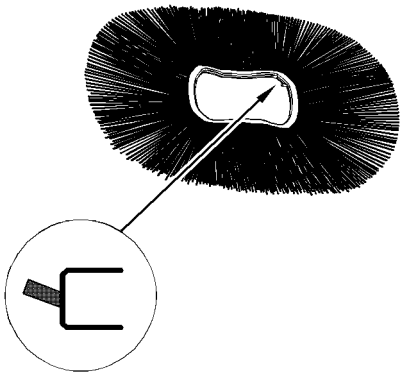

Illustration 57 g01233356

2. Become familiar with the orientation of the drive pins on the inside of the brush. Notice that the drive pins angle. The drive pins can angle upward or the drive pins can angle downward. Flip the entire brush in order to change the direction of the drive pins.

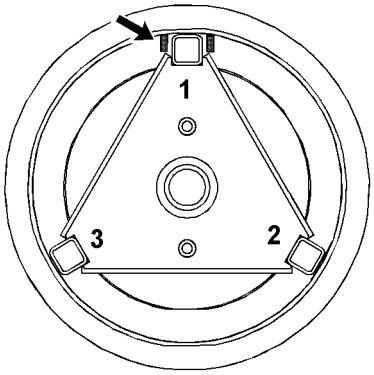

Illustration 58 g01937278

3. The first segment is a polypropylene bristle. Slide the first segment onto the core. The drive pins should be located on both sides of tube 1.

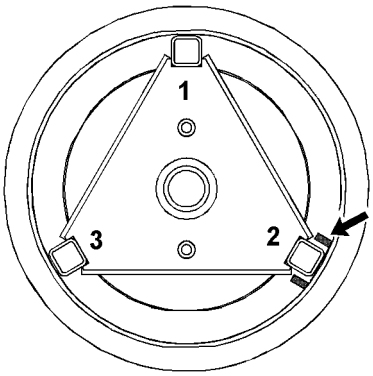

Illustration 59 g01937279

4. The second segment is a wire bristle. Slide the second segment onto the core. The drive pins should be located on both sides of tube 2. The drive pins must angle downward.

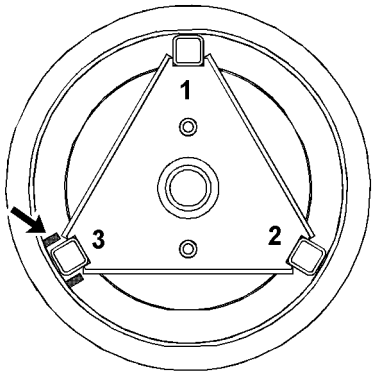

Illustration 60 g01937282

5. The third segment is a polypropylene bristle. Slide the third segment onto the core. The drive pins should be located on both sides of tube 3. The drive pins must angle upward.

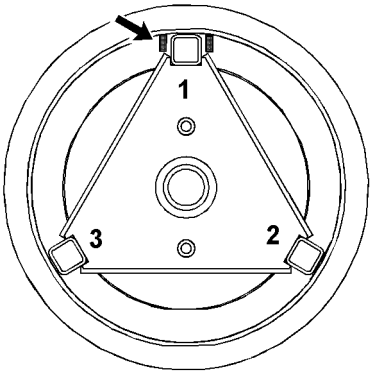

Illustration 61 g01937278

6. The fourth segment is a polypropylene bristle. Slide the fourth segment onto the core. The drive pins should be located on both sides of tube 1. The drive pins must angle downward.

7. Follow this same pattern and continue to add segments. The drive pins must alternate from an upward position to a downward position with each new segment. Refer to illustration 57.

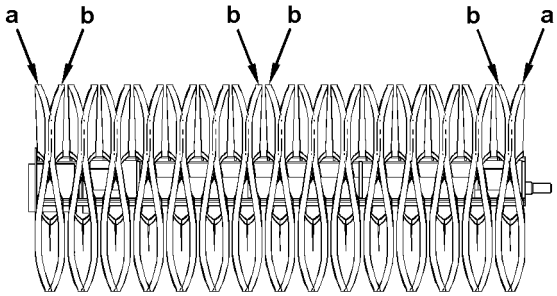

Illustration 62 g01937333

(a) polypropylene bristle
(b) wire bristle

8. Add segments until the core is full. The last segment should be a polypropylene bristle.

Note: In order to replace the segments, the first segment and the last segment on the core must be polypropylene bristles. Alternate the new segments. Start with a polypropylene bristle. Next add a wire bristle. Next add a polypropylene bristle. Continue adding segments according to this method. Two identical types of bristles may be required in a row in order for each of the segments on the ends to be a polypropylene bristle.

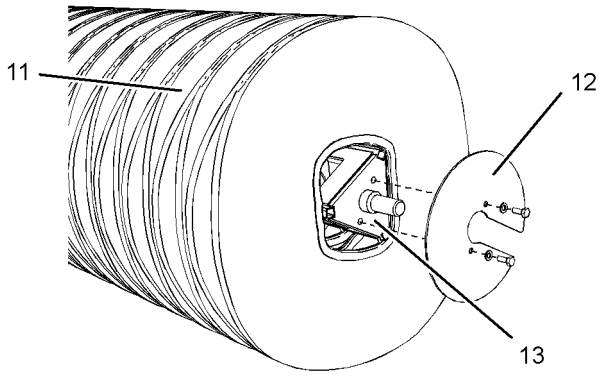

Illustration 63 g01937273

9. Attach end plate (12) to core (13). Install the two bolts in end plate (12).

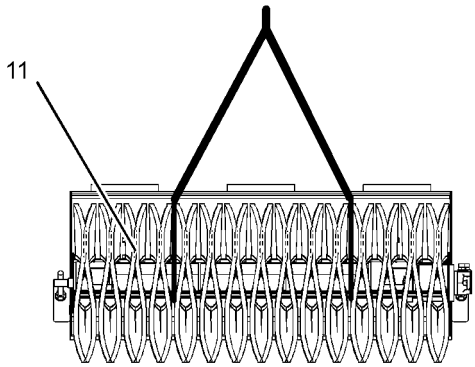

Illustration 64 g01936710

10. Carefully position the brush assembly (11) onto the broom. Use the same suitable lifting device.

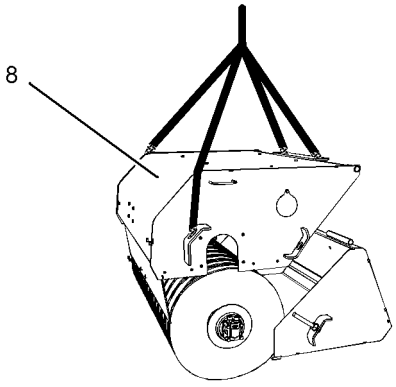

Illustration 65 g01936706

11. Attach broom frame (8). Use the same suitable lifting device.

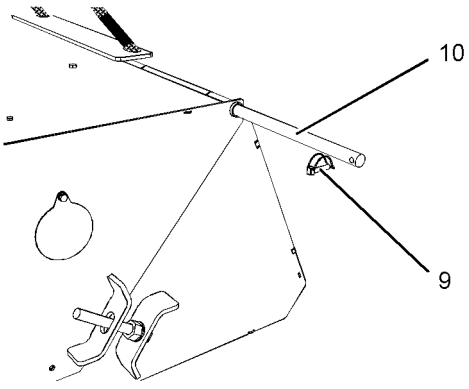

Illustration 66 g01936707

12. Drive the pin (10) into the broom frame (8). Install the pin assembly (9). Repeat for the other side.

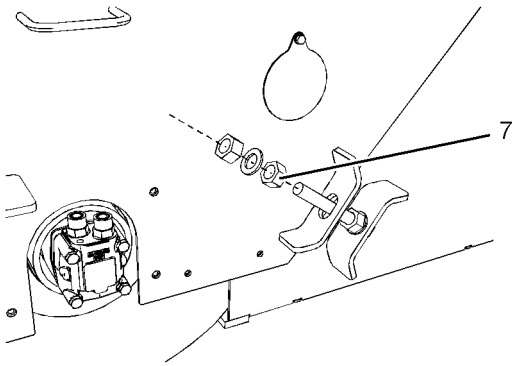

Illustration 67 g01936704

13. Install nuts (7). Repeat for the other side.

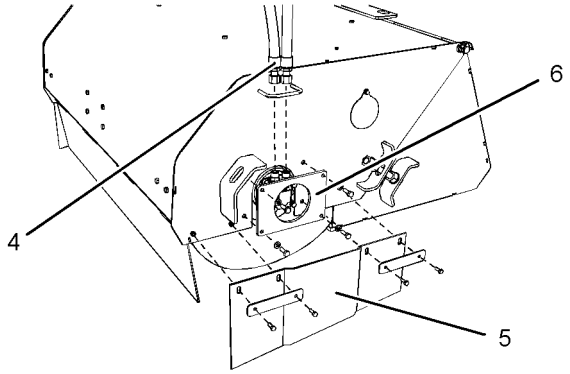

Illustration 68 g01936703

14. Install the plate (6). Install the skirt (5). Connect the hose assemblies (4).

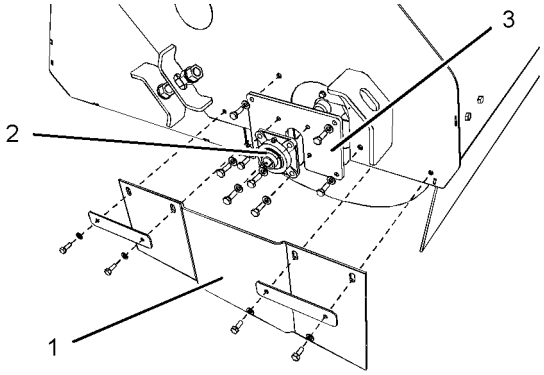

Illustration 69 g01936700

15. Install the plate (3). Install the shaft bearing (2). Install the skirt (1). Refer to Service Manual, RENR5838, “Broom Shaft Bearing - Remove and Install” for additional information on installing the shaft bearing.

16. Attach the work tool to the host machine. Refer to , “Work Tool Installation and Removal” for information on installing the work tool.

17. Adjust the operating height of the broom. Refer to , “Adjustment” for information on adjusting the broom.

i02183248

Broom Shaft Bearing - Lubricate

SMCS Code: 7551-086-JF

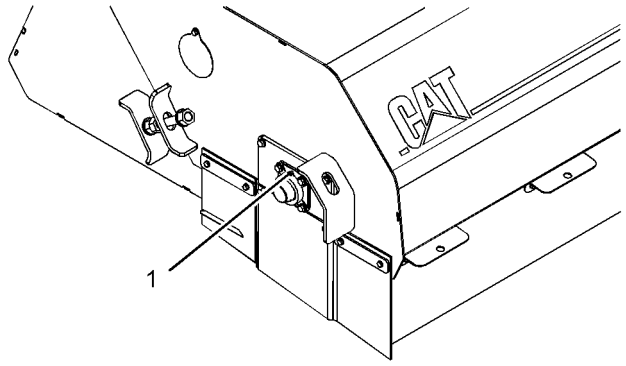

Illustration 70 g01123221

Apply lubricant to the fitting for the bearing (1).

i02357958

Cutting Edges - Inspect/Replace

SMCS Code: 6801-040-G1; 6801-510-G1

⚠ WARNING

Personal injury or death can result from hopper falling.

Block the hopper before changing hopper wear edges.

1. Use a suitable lifting device to support the broom housing.

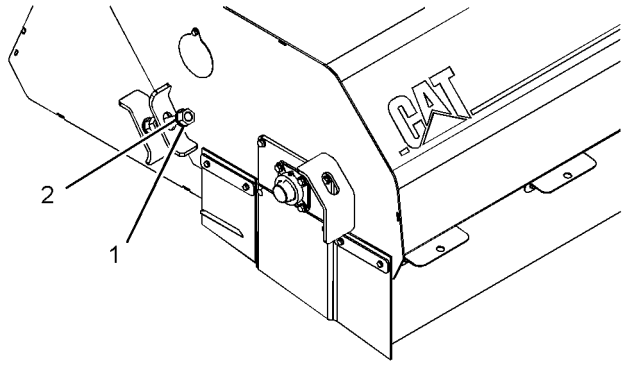

Illustration 71 g01123268

2. Remove bolt (1) and remove washer (2) from adjustment assembly on both sides of the utility broom.

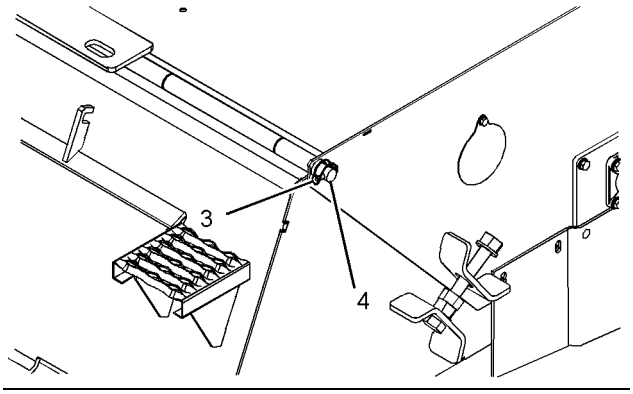

Illustration 72 g01154911

3. Remove pin (3) from bar (4) of the pivot.

4. Remove bar (4).

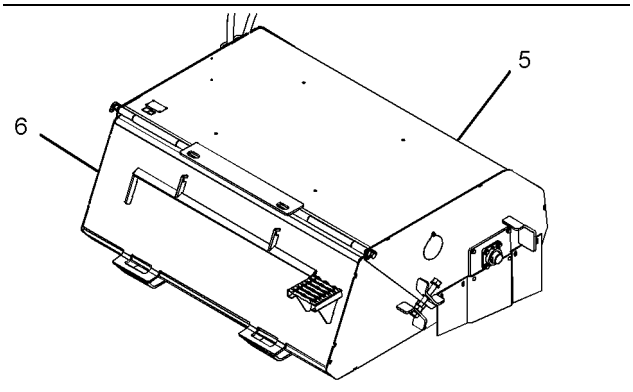

Illustration 73 g01154912

5. Lift broom housing (5) from hopper (6). Set the broom housing aside.

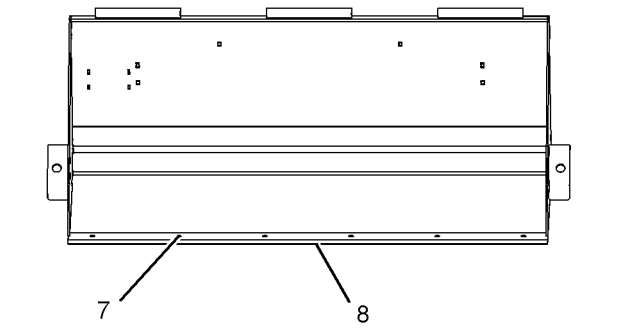

Illustration 74 g01123359

6. Block up the front of the hopper.

Do not block up the front of the hopper too high. Block up the front of the hopper so that the front edge is high enough to remove the wear edge.

7. Remove the bolts (7). Remove the wear edge (8).

8. Clean the contact surfaces.

9. Use the opposite side of the wear edge, if this side is not worn.

10. Install a new wear edge, if both edges are worn.

11. Install the bolts. Tighten the bolts to the specified torque.

12. Raise the front of the hopper. Remove the blocks.

13. Lower the hopper to the ground.

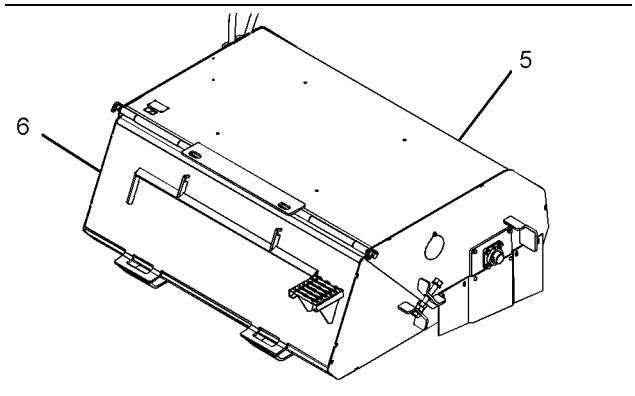

Illustration 75 g01154912

14. Use a suitable lifting device to align broom housing (5) with hopper (6).

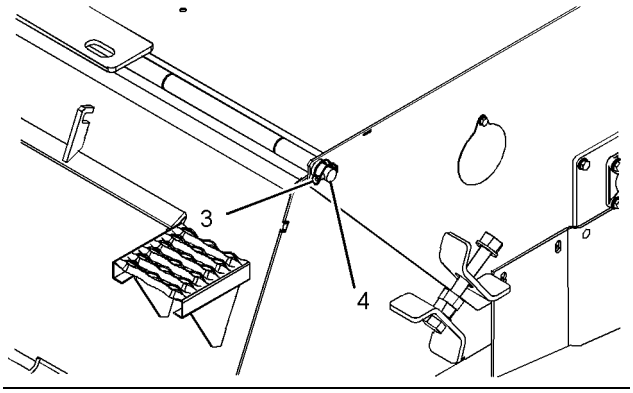

Illustration 76 g01154911

15. Install pins (3) and bar (4).

After a few hours of operation, check the bolts for proper torque.

i02305951

Frame Mounting Bracket - Inspect

SMCS Code: 7050-040-MT

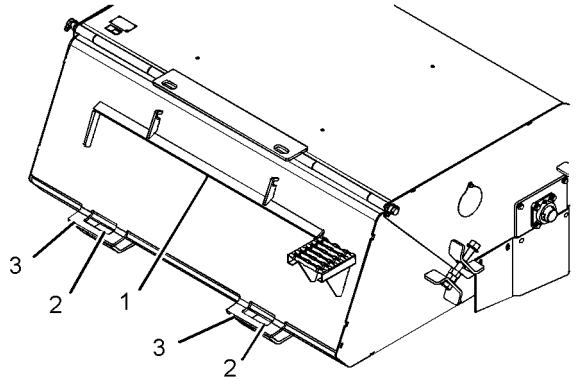

Illustration 77 g01154917

Inspect upper angled plate (1) and ensure that the plate is not bent or otherwise damaged. Inspect holes (2) for excessive wear and for damage. Inspect lower angled plate (3) and ensure that the plate was not bent or otherwise damaged. Consult your Caterpillar dealer if any wear is suspected or any damage is suspected.

i02305955

Skirts - Inspect/Adjust/Replace

SMCS Code: 7150-025-FRM; 7150-040-FRM; 7150-510-FRM

Inspect the skirts for wear and for damage. If necessary, replace any worn skirts or any damaged skirts. The front skirt should touch the ground slightly. The side skirt should touch the ground slightly.

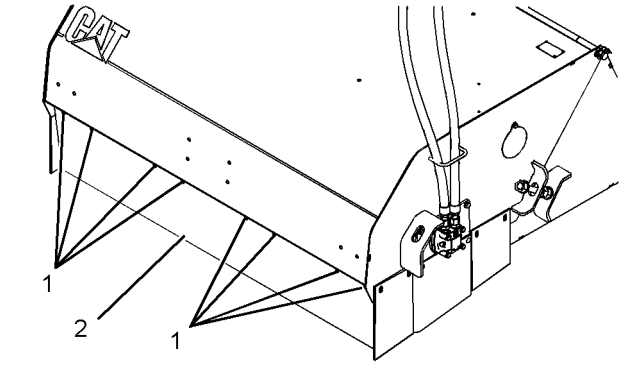

Illustration 78 g01154922

To adjust the front skirt and the side skirts, loosen the bolts (1). Reposition the skirt (2) and tighten the bolts.

To replace the front skirt, remove six bolts (1), the two back plates and skirt (2). Install a new skirt, the back plates and the six bolts. Adjust the skirt to the desired position and tighten the bolts.

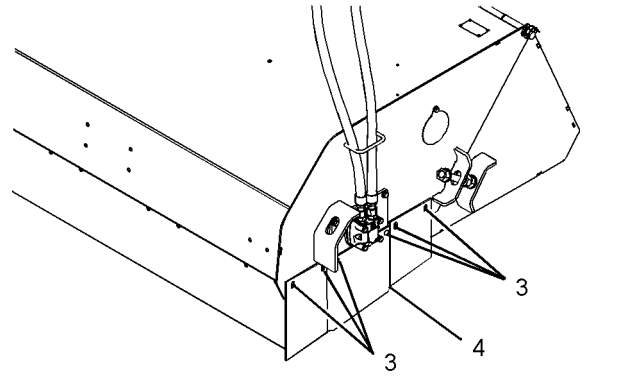

Illustration 79 g01154927

To adjust the side skirts, loosen the bolts (3). Reposition the skirt (4) and tighten the bolts.

To replace the side skirts, remove the two bolts (4). Install a new skirt. Adjust the skirt to the desired position and tighten the bolts.

i02183500

Gutter Brush - Inspect/Replace

SMCS Code: 6707

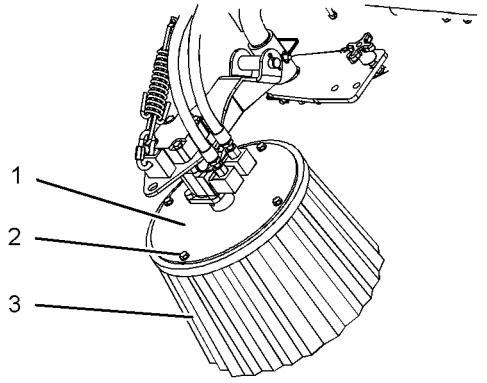

Illustration 80 g01059192

Inspect the wire bristle for any wear or for any damage.

To remove the wire bristle, remove four bolts (2). Remove wire bristle (3) from bracket (1).